REMARKS

Claims 1-10 are pending in the application. Claims 1-10 were rejected by the Examiner. The Examiner states that the drawings are acceptable after correction of certain informalities. Applicant has submitted formal drawings with the informalities corrected under separate cover. Applicant has included a copy of these formal drawings with this response for the Examiner's convenience.

Claims 1, 2, 4-6 and 10 are rejected under 35 USC 102(e) as being anticipated by Parulski, et al., U.S. Patent No. 5,914,748, (Parulski). Applicant respectfully disagrees.

As set out in Applicant's specification and in amended claim 1, Applicant first takes an image of a background with no foreground object and then takes an image having a foreground object. The method disclosed in Parulski takes an input image with the foreground object and then the background with no foreground object.

Further, as amended, Applicant's claim 1 requires that the classification of foreground and background pixels be initially made by application of a probability function. Parulski uses a different image, subtracting the values from one image from the values of the other image. There is no mention, showing or suggestion of applying a probability function to the image having a foreground object to make the initial classification of the foreground and background pixels. Further, Applicant does not generate a difference image, using the image with no foreground data as input into the probability function. Therefore, Applicant submits that claim 1, as amended, is patentably distinguishable over the prior art and request allowance of this claim.

Claims 2, 4-6, 9 and 10 depend from claim 1 and should be ruled allowable for the reason and for their own merits. Specifically, Parulski does not teach all of the elements of the claimed invention, for the reasons set out above. Further Parulski does not teach, show nor suggest applying a probability function to determine a classification of foreground and background pixels in RGB color space, as is required by claim 2, applying the probability function to one frame of video data as is required by claim 4, more than one frame of video data as is required by claim 5, or a still image as is required by claim 6. Similarly, Parulski does not show, teach nor suggest separating the foreground image from the background image by application of a probability function to create a new image of the foreground image with a new background where the new image is a video image as is required by claim 9, nor a still image as is required by claim 10. Applicant therefore submits that claims 2, 4-6, 9 and 10 are patentably distinguishable over the prior art and request allowance of these claims.

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Claim 3 is rejected under 35 USC 103(a) as being unpatentable over Parulski, et al., in view of Gehrmann (U.S. Patent No. 5,382,980). Applicant respectfully disagrees.

Applicant questions the combination of references, as Gehrmann does not involve separation of a foreground image from a background image, but is instead directed to improving image quality by manipulation of color planes. However, in the event that the combination is not seen to result from the improper use of hindsight, Applicant further submits that the combination of references does not render obvious the Applicant's invention as claimed.

Specifically, neither Parulski nor Gehrmann, nor the combination of references thereof, show, teach nor suggest classifying pixels in an image as foreground pixels or background pixels by application of a probability function in YCbCr color space. Therefore, Applicant submits that claim 3 is patentably distinguishable over the prior art and request allowance of this claim.

Claim 7 is rejected under 35 USC 103(a) as being unpatentable over Parulski, et al., in view of Jang (U.S. Patent No. 5,825,909). Applicant respectfully disagrees.

Similar to the combination of references above, Jang is not related to the separation of pixels between foreground and background, but directed to segmenting areas of an image for further processing. However, even assuming that the combination of references is proper, Applicant submits that neither of the references, nor the combination thereof renders Applicant's invention as claimed in claim 7 obvious.

Neither Jang, Parulski, nor the combination thereof teaching applying a probability function to separate foreground pixels to background pixels and then further refining a pixel's classification using anisotropic diffusion. Jang does not teach the use of anisotropic filters for better separation between foreground and background pixels. Therefore, Applicant submits that claim 7 is patentably distinguishable over the prior art and request allowance of this claim.

Claim 8 is rejected under 35 USC 103(a) as being unpatentable over Parulski, et al., in view of Gardos (U.S. Patent No. 5,710,602).

Neither Parulski, Gardos, nor the combination thereof, teaches making an initial determination of foreground or background for a given pixel by application of a probability function, where that determination is then refined using a morphological filter. Therefore, Applicant submits that claim 8 is patentably distinguishable over the prior art and request allowance of this claim.

No new matter has been added by this amendment. For the Examiner's convenience, we have attached copies of new drawings which are being filed with the Official Draftsman under separate cover. The prior art cited but not relied upon has been reviewed and is not considered relevant to the Applicant's disclosure. Allowance of all claims is requested.

The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the specification:

On page 5, line 7, please replace "obejcts" with —objects--.

In the claims:

1.   (Once amended) A method for background replacement in image capture systems, the method comprising [the steps of]:

    [a)]   recording a background of an image with no foreground object with an image capture device;

    [b)]   using said image capture device to capture an input image having a foreground object;

    [c)]   classifying each pixel in said input image as a foreground pixel or a background pixel by applying a probability function resulting in a classification;

    [d)]   refining said classification to ensure proper classification;

    [e)]   replacing said background pixels with pixels from a different background, wherein said replacing is performed with feathering; and

    [f)]   producing an output image comprised of said foreground pixels and said pixels from a different background.